Catalogue no. 21-601-MIE — No. 081
ISSN: 1707-0368
ISBN: 0-662-43721-7

Research Paper

The Demographic Overlap of Agriculture and Rural

by Ray D. Bollman, Statistics Canada

Agriculture Division
Jean Talon Building, 12th floor, Ottawa, K1A 0T6

Telephone: 1-800-465-1991

Statistics Canada Statistique Canada

Canada

Statistics Canada
Agriculture Division

Agriculture and Rural Working Paper Series
Working Paper No. 81

The Demographic Overlap of Agriculture and Rural

January 2007

Catalogue No. 21-601-MIE

ISSN 1707-0368
ISBN 0-662-43721-7

Frequency: Occasional

Ottawa

La version française est disponible sur demande (n° 21-601-MIF au catalogue)

Published by authority of the Minister responsible for Statistics Canada.
© Minister of Industry, 2007.
All rights reserved. The content of this electronic publication may be reproduced, in whole or in part, and by any means, without further permission from Statistics Canada, subject to the following conditions: that it be done solely for the purposes of private study, research, criticism, review or newspaper summary, and/or for non-commercial purposes; and that Statistics Canada be fully acknowledged as follows: Source (or "Adapted from", if appropriate): Statistics Canada, year of publication, name of product, catalogue number, volume and issue numbers, reference period and page(s). Otherwise, no part of this publication may be reproduced, stored in a retrieval system or transmitted in any form, by any means—electronic, mechanical or photocopy—or for any purposes without prior written permission of Licensing Services, Client Services Division, Statistics Canada, Ottawa, Ontario, Canada K1A 0T6.

Note of appreciation

Canada owes the success of its statistical system to a long-standing partnership between Statistics Canada, the citizens of Canada, its businesses, governments and other institutions. Accurate and timely statistical information could not be produced without their continued cooperation and goodwill.

Symbols

The following standard symbols are used in Statistics Canada publications:

.	not available for any reference period
..	not available for a specific reference period
...	not applicable
0	true zero or a value rounded to zero
0^s	value rounded to 0 (zero) where there is a meaningful distinction between true zero and the value that was rounded
^{p}	preliminary
^{r}	revised
x	suppressed to meet the confidentiality requirements of the *Statistics Act*
A	excellent
B	very good
C	good
D	acceptable
^{E}	use with caution
F	too unreliable to be published

Executive summary

The "people-scape" of predominantly rural regions in OECD countries is not agricultural – even though the landscape may be agricultural. On average, less than 10 percent of the OECD predominantly rural workforce is employed in agriculture. Thus, agricultural policy is received directly by a minority of the rural workforce (although spin-off effects to other people in related services and the community may occur).

In addition, agricultural policy is not solely focused on predominantly rural regions. In fact, about one-half of OECD agricultural workers are employed in intermediate and predominantly urban regions.

Since only one-half of agricultural policy is delivered to predominantly rural regions and since agricultural policy within predominantly rural regions is delivered to less than 10 percent of the workforce of these regions, 'agriculture' and agricultural policy would appear to have a weak demographic overlap with 'rural' and rural development policy.

This working paper is based on a presentation to the OECD workshop on Coherence of Agricultural and Rural Development Policies, Bratislava, October 24-26, 2005 and has been published as:

Bollman, Ray D. (2006). "The Demographic Overlap of Agriculture and Rural: Implications for the Coherence of Agricultural and Rural Policies." Chapter 3 in Dimitris Diakosavvas (ed.) **Coherence of Agricultural and Rural Development Policies** (Paris: OECD).

Table of contents

Executive summary		3
1	Introduction	5
2	An historical view: What share of Canada's census-rural population lives on a census-farm?	6
3	Across OECD countries, what share of the workforce in predominantly rural regions is employed in agriculture?	7
4	Across OECD countries, what share of the agricultural workforce is employed in predominantly rural regions?	9
5	The interest of rural in agriculture	12
6	The interest of agriculture in rural	13
7	If rural has little interest in agriculture, where does its interest lie?	14
8	Conclusion	18

1 Introduction

The historical tight overlap between "rural" and "agriculture" no longer exists – at least in a demographic (or "jobs") sense. The purpose of this paper is to document the changing nature of this overlap.

- **What is rural?**

Rural is distance and density. Individuals are "more rural" if they must travel longer distances to access services or to access markets to sell their goods and services. Also, low population density (which results in the lack of "agglomeration economies") defines rural areas – implying that production systems will be smaller and generally less diversified (due to the availability of a smaller workforce).

Thus, since rural is distance and density, **rural policy** will focus on the price of distance[1] and the price of low population density (or low agglomeration economies).

Consideration of factors other than distance and density would be more correctly labeled as regional policy – and the policy options for regional development are quite similar for both predominantly urban regions and for predominantly rural regions (except for the distance and the density aspects that define predominantly rural regions).

- **What is development?**

In many short(er)-run policy discussions, one key policy focus of "development" is growth in the number of jobs.[2] This implies that rural development is the creation of jobs in areas with a long distance to services or markets and in areas with a low population density. Thus, rural development policy is a focus on policy initiatives that enhance the creation of jobs in areas that are a long distance from markets and which have a low population density.[3]

- **What is agriculture?**

---

1. The price of distance would include the money cost and the time cost of moving goods, services and people across space. As an alternative to the term "price of distance," one might use the term "socio-economic cost of distance." A health price of distance could be estimated by comparing the probability of dying if one skips a health examination versus the probability of dying from an auto accident on an icy winter road if one drives to the health examination.
2. The choice of the indicator of community success is important. The choice will depend, in part, to whom one is speaking. The school teacher may prefer population growth from an influx of young families whereas the swimming pool salesperson may prefer a growth in community wages. Different factors are associated with different measures of community success (Bollman, 1998).
3. In the long(er)-run, "ideas" are, arguably, the driver of development (jobs, or other desired development outcomes). Thus, rural development would be the generation of constructive ideas (that would generate desired outcomes) in areas that are a long distance from markets and have a low population density. Rural development policy would be the focus on policy initiatives to enhance the creation of new ideas in areas that are a long distance from markets and which have a low population density.

Agriculture is the production of food and fibre. Hence, **agricultural policy** will focus on the efficient production of food and fibre in order to ensure food and fibre production remains competitive. Given the variability in agricultural production due to weather and international price shocks, agricultural policy in some countries also attempts to stabilize the returns to resources employed in certain lines of production so that resources stay in their long-run competitive line of production, rather than suffering short-run transactions costs of switching from one line of production to another. In other countries, some commodities receive a price subsidy – sometimes to ensure national self-sufficiency of the commodity, sometimes to ensure an adequate supply of the commodity for the processing sector and sometimes with the stated objective of ensuring a "fair standard of living for farmers."

- **Where is the overlap or intersection of agriculture and rural?**

When many observers view an agricultural vista, they see rural. And, when many observers think rural, they envision an agricultural landscape. Historically, this has been a reasonable set of observations. However, over time, in rural areas, there have been more and more jobs in non-agricultural sectors. At the same time, transportation technology has allowed individuals in rural-metro-adjacent regions to access city jobs, including members of farming families. Many farming families are not nearly as "rural" as they used to be. As a consequence of the improvements in transportation technology and the relative decline in the price of transportation, a considerable share of agricultural production now takes place in areas that are not rural – i.e. in areas without a high price of distance to cities. For example, about 20 percent of Canadian agricultural production occurred within "Larger Urban Centres"[4] in 1996 (Lonmo, 1999).

2 An historical view: What share of Canada's census-rural population lives on a census-farm?

Using the "census-rural" definition (du Plessis *et al.*, 2001), which defines rural as residents living outside centres of 1,000 or more, Canada's rural population has remained at about 6 million inhabitants since World War II. In 1931, two-thirds (67 percent) of the census-rural population lived on a census-farm[5] (Table 1). This is a large share in a Canadian context where rural also encompasses many communities associated with fishing, lumbering and mining. By 2001, 11 percent of Canada's census-rural population lived on a census-farm. Thus, in 1931, agricultural policy would be received by two-thirds of rural Canadians – today, agricultural policy is received by only 11 percent of rural Canadians.

---

4. "Larger Urban Centres" refers to Census Metropolitan Areas" (CMAs) and "Census Agglomerations" (CAs) which are functional labour markets with an urban core population of 100,000 or more for CMAs and an urban core of 10,000 to 99,999 for CAs). The CMA and CA include the residents of surrounding incorporated towns and incorporated municipalities where 50 percent or more of the workforce commutes to the core of the CMA or CA.
5. A census-farm is any agricultural holding with some agricultural products for sale.

In Canada, a major focus of agricultural policy is revenue stabilization support to farmers. In 2001, about one-half (53 percent) of the census-farms generated less than $50,000[6] of gross farm revenue. Families associated with these census-farms would have received very small program payments because the payments are generally based on the level of farm output[7]. Therefore, only about one-half of the census-farms would be big enough to receive a significant agricultural program payment – implying that the demographic overlap of agriculture and rural now involves less than 10 percent of the rural population. It can be seen that there has been a significant structural change in the "people-scape" of Canada's rural areas in the last 70 years.

Table 1 In 2001, only 11 percent of Canada's census rural population lived on a census-farm

Date	Total population (million)	Census rural population (million)	Census rural population living in a census-farm operator household	
			Number (million)	Percent of census rural population
1931	10.4	4.4	3.2	67
2001	29.9	6.1	0.7	11

Note: The census rural population refers to individuals living outside centres of 1,000 or more.
Source: Statistics Canada, Census of Population, 1931 and 2001.

3 Across OECD countries, what share of the workforce in predominantly rural regions is employed in agriculture?

In the OECD countries for which we have data on employment by sector by region, in 2001, only 9 percent of the workforce in predominantly rural regions[8,9] (see Box 1 for

6. Using October, 2005 exchange rates, $50,000 Canadian dollars was about $43,000 USA dollars or about 35,000 Euro.
7. In 2004, the Farm Financial Survey showed that 7 percent of government program payments was paid to farms with a gross revenue of less than $50,000. (Calculated from Table 9 in Statistics Canada (2006).) Program payments are generally proportional to the size of gross farm revenue because program payments are based on the size of farm production. Interestingly, since program payments are larger (per unit of gross revenue) for grain farms and since grain farms are more likely to appear in the middle of the farm size distribution, program payments per dollar of gross revenue is smaller on the larger farms (because larger farms are more likely to be livestock farms and livestock farms are less likely to receive program payments) (Bollman, 1989; Statistics Canada, 2006).
8. Our analysis focuses on regions for a number of reasons. First, in an era of simultaneous globalisation and localisation, although some important decisions impacting the well-being of individuals are moving up to trans-national agencies or corporations, other important decisions are moving down to the local level (e.g. the quality of the local environment, the quality of local schools, etc.). Second, in many cases, communities do not have the capacity to manage these "local" issues and thus a regional focus is required. However, if the local population does not identify themselves with a specific region, progress on regional policy will be difficult (Douglas, 1999).
9. To keep the tables simpler, predominantly urban and intermediate (PUI) regions have been combined into one category (see Box A). More detailed tables are available from the author upon request. Some analysts discuss rural policy for intermediate areas (e.g. analysts from the Netherlands, because the OECD does not designate any region in the Netherlands as a predominantly rural region). There is, admittedly, a lot of agricultural countryside in PUI regions. This "countryside" may be agricultural but these areas are not rural – they are *not* distant from services and they are *not* distant from urban markets. For some issues (*e.g.* the supply of clean drinking water), the countryside dwellers in PUI regions may share concerns with rural residents. However, the residents of PUI

definitions) was employed in agriculture[10] (Table 2). In other words, 91 percent of the predominantly rural population is not directly impacted by the delivery of agricultural policies.

No OECD country had more than one-third of its workforce in predominantly rural regions employed in agriculture (Figure 1). In fact, by 2000, only three countries (Mexico, Greece and Portugal) had more than 20 percent of their predominantly rural workforce employed in agriculture.

Also, note that the share of the predominantly rural workforce employed in agriculture has been declining in almost every OECD country. In Canada, the share declined from 13 percent in 1981 to 9 percent in 2001. These observations suggest that a focus on agricultural policy is missing the vast majority of rural residents[11].

Box 1 Definition of geographic regions

Regions are classified at the Territorial Level 3 (OECD, 1994) to three types:

Predominantly Rural Regions: more than 50 percent of the population lives in a 'rural community'.

Intermediate Regions: 15 percent to 50 percent of the population lives in a 'rural community'.

Predominantly Urban Regions: less than 15 percent of the population lives in a 'rural community'.

A **rural community** is a community with a population density less than 150 people per square kilometre (and, in Japan, less than 500 persons per square kilometre).

---

regions are not rural – because they are not distant from urban services and they are not distant from urban markets.

10. "Agriculture" refers to International Standard Industrial Classification (ISIC) =1, which includes employment in agriculture (i.e. on farms) plus employment in forestry, fishing and hunting. Although the term "agriculture" is used in this paper to refer to ISIC=1, this will somewhat overstate the importance of agriculture in countries with a significant forestry and fishing workforce, such as Canada. However, overstating the importance of "agriculture" will bias the results against the argument that there is a small and declining demographic overlap of agriculture and rural.
11. We acknowledge below (in Sections 5 and 7) that the agriculture sector may generate positive spin-off effects for rural residents. We also acknowledge that payments to the farm sector may not be wholly captured by the farm sector. As the extensive literature in public finance has documented, the (final) incidence of a tax or a subsidy depends upon the demand and supply elasticities for the sector. Thus, for example, suppliers of inputs to the farm sector would be expected to "capture" some of the subsidy and owners of farm land (37 percent of farmland in Canada in 2001 was not owned by the operator) would be expected to "capture" some of the subsidy. In this paper, our focus is simple (and narrow) – we simply assign the (initial) impact of agricultural subsidies by observing the geographic location of people working in agriculture.

Table 2 Employment distribution by sector and type of region, 20 selected OECD countries[1], 2000

Regional type	Sector		
	Agriculture (ISIC=1)[2]	All non-agricultural sectors (industry and services)	All sectors
	Number (million)		
Predominantly urban or intermediate regions	8	277	285
Predominantly rural regions	9	90	100
All types of regions	18	368	385
	Percent distribution of employment within each type of region (row percent)		
Predominantly urban or intermediate regions	3	97	100
Predominantly rural regions	9	91	100
All types of regions	5	95	100
	Percent distribution of employment across regions (column percent)		
Predominantly urban or intermediate regions	47	75	74
Predominantly rural regions	53	25	26
All types of regions	100	100	100

Note: Due to rounding, figures may not sum to totals.
1: The 20 countries included in the calculation are: Australia, Belgium, Canada, Denmark, France, Germany, Greece, Hungary, Ireland, Italy, Japan, Mexico, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland and the USA.
2: ISIC (International Standard Industrial Classification) = 1 includes agriculture, forestry and fishing.
Source: OECD Territorial Database.

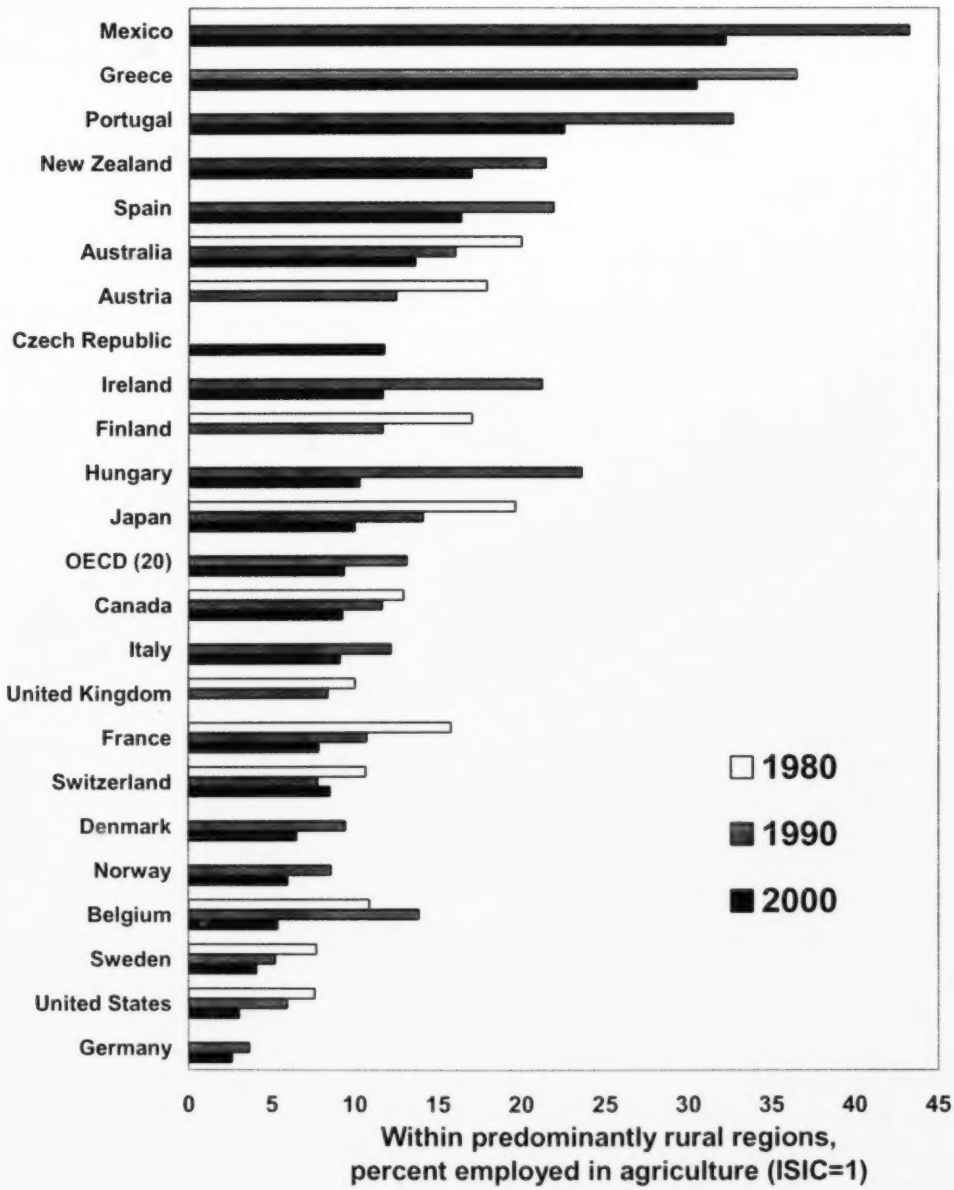
4 Across OECD countries, what share of the agricultural workforce is employed in predominantly rural regions?

Within the OECD, one-half (53 percent in 2000) of the agricultural workforce is employed in predominantly rural regions – the remaining one-half of the agricultural workforce is employed in intermediate or predominantly urban regions (Table 2). In Finland, 84 percent of its agriculture workforce was in predominantly rural regions and only 16 percent in intermediate or predominantly urban regions in 2000 (Figure 2). At the other end of the scale, there are no predominantly rural regions in the Netherlands – their agricultural workforce is split between 19 percent in intermediate regions and 81 percent in predominantly urban regions.

Thus, not all agricultural policy goes to predominantly rural regions. About one-half of agricultural policy across the OECD is delivered to intermediate or predominantly urban regions.[12]

12. This invites a discussion of the coherence of the policy for agricultural production vis-à-vis the policy for the development of metropolitan regions. Recall the caveat in the previous footnote concerning the possible positive spin-offs that may be generated by the agricultural sector.

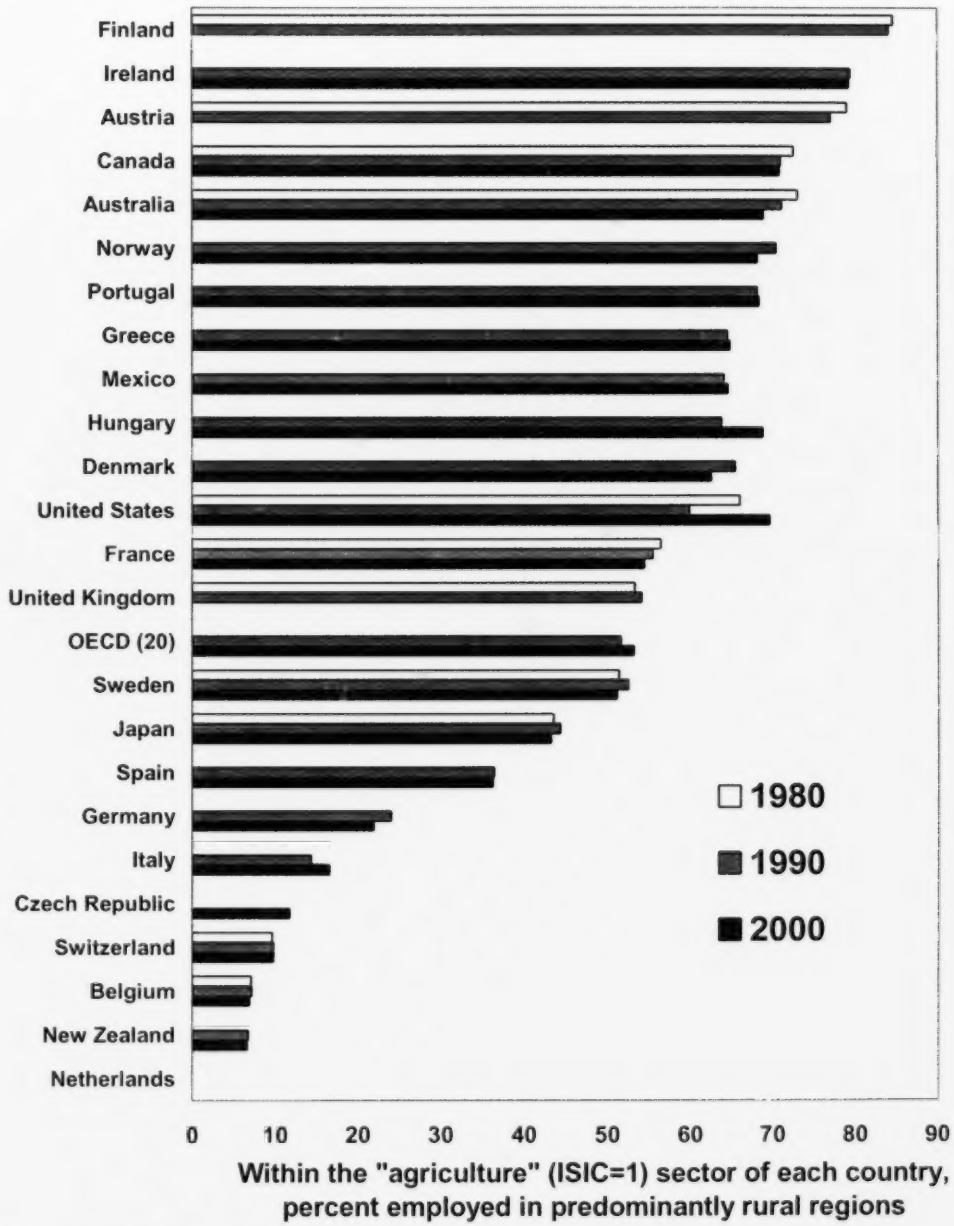
Figure 1 Within OECD predominantly rural regions, 9 percent of the workforce is employed in "agriculture"



Note: OECD (20) refers to the 20 countries for which employment data were available by sector and by region in 1990 and in 2000.

Source: OECD Territorial Database.

Figure 2 Within the OECD, one-half of the agriculture workforce is employed in predominantly rural regions and one-half is employed in intermediate and predominantly urban regions



Note: OECD (20) refers to the 20 countries for which employment data were available by sector and by region in 1990 and in 2000.

Source: OECD Territorial Database.

5 The interest of rural in agriculture

Rural development, as conceptualized here, is the growth of jobs in areas with a long distance to urban and with a low population density. Thus, the interest of 'rural' in 'agriculture' is the ability of 'agriculture' to create rural jobs. Across the OECD, the agriculture workforce is declining. Within predominantly rural regions, the agriculture workforce declined 2.3 percent per year during the 1990s (Table 3). Thus, the agriculture sector is not creating jobs in farming.

However, some farming enterprises are also involved in non-farm enterprises. Bollman (1998) notes that about 15 percent of Canadian census-farms also operate a non-farm business. Rural development (i.e. the creation of rural jobs) would thus have an interest in farming operations which create jobs in non-farm enterprises. Examples of non-farm enterprises located on a census-farm might be a machinery repair enterprise or a hair dressing enterprise that is operated by a family member. This may or may not have a significant impact on the number of jobs in any given predominantly rural region.[13]

According to the OECD (2001), strategies for regional development should look to invest in, or to valorise, under-utilised assets. One potential asset is the agricultural landscape. Thus, one possible interest of 'rural' in 'agriculture' is the enhancement of an agricultural landscape that can be valorised to create rural jobs in tourism. However, in some countries, the asset of the agricultural landscape is a relatively small share of all rural assets. In Canada, for example, tourists are more likely to be drawn to mountains, tundra, ice bergs, northern lights, whale watching, pristine lakes, polar bears and white-water rapids and are less likely to be drawn to an agricultural vista. Thus, in some countries, to focus on the asset of the agricultural landscape is to focus on only a small portion of all rural assets.

Arguably, the agricultural landscape near cities (recall that this is not a "rural" agricultural landscape because it is not distant from urban services and is not distant from the (potential) urban consumers of the agricultural landscape) would be expected to be more valuable (i.e. valorised at a higher rate per hectare) because the demand for this landscape would be expected to come from large numbers of urban consumers with relatively easy access.

In some countries, agricultural policy is moving from a focus on agricultural production towards a focus on the agricultural landscape. Diakosavvas (2005) indicates that, across the OECD, about 90 percent of the PSE (Producer Support Estimate) is tied to the level of

13. In Canada, 9 percent of the predominantly rural workforce is employed in agriculture (Figure 1). Canada is similar to the USA with a historical constant of about 1.4 workers per census-farm (Kislev and Peterson, 1982). If the 15 percent of census-farms with a non-farm business each created, say, 2 non-farm jobs, then the contribution to the non-farm workforce in predominantly rural regions in Canada would be 0.09 agricultural workers per rural non-farm job divided by 1.4 agricultural workers per census-farm times 0.15 non-farm enterprises per census-farm times 2 non-farm jobs per non-farm enterprise = 0.02 (2 percent) of the non-farm workforce. Thus, on average, the impact on non-farm employment by census-farms with non-farm enterprises is small.

agricultural production.[14] Thus, although there is a shift towards supporting the landscape for possible valorization by rural development initiatives, this policy shift has a long way to go. Moreover, as suggested earlier, the agricultural landscape is only one of a myriad of rural assets that may be valorized by rural development policy.

Jobs generated from the valorisation of an agricultural landscape may be classified to the farming sector (for example, in the case of a farming operation that adds a bed and breakfast enterprise to the farming operation) or the jobs may be classified to another sector (for example, if a tour operator offers weekend bicycle tours through the agricultural landscape). Regardless of the sector, these jobs are generated from the agricultural landscape. The jobs generated in predominantly rural regions will appear as rural jobs and jobs in predominantly urban and intermediate regions will be urban jobs.

Table 3 Employment in agriculture declined in each type of region, selected OECD countries,[1] 1990 to 2000

	Agriculture	Industry	Services	All sectors
	Annualised rate of growth of employment (percent)			
Predominantly urban regions	-3.0	-0.8	1.7	0.9
Intermediate regions	-2.9	-0.1	1.8	1.0
Predominantly rural regions	-2.3	0.5	1.9	1.0
All regions	-2.6	-0.2	1.8	1.0

1: Selected OECD countries refers to the 20 countries for which employment data were available by sector and by region in 1990 and in 2000.

Source: OECD Territorial Database.

6 The interest of agriculture in rural

'Agriculture' as the competitive production of commodities relates to rural in two possible dimensions:

i. being less rural would imply that commodities are produced closer to a market; and

ii. being more rural would imply that commodities are produced at lower costs because of lower land prices and less attention would need to be paid to the externalities of pollution (noise pollution, odour pollution, water pollution, light from greenhouses, etc.).

Moving past the definition of 'agriculture' as being the efficient production of commodities, it might be noted that farming families have an interest in rural. Specifically, some efficient farming enterprises do not require a full-year full-time operator. Thus, some operators choose an off-farm job rather than a secondary farming enterprise to maximise their own labour returns. Similarly, not all farms have full-year full-time work for all family members who wish to work. Thus, some choose an off-farm job.

14. This includes market price supports plus payments based on output plus payments based on input use plus payments based on area planted and animal numbers.

Typically, farm operators with some off-farm work have higher incomes.[15] Interestingly, in the 1980s, Canadian farmers appeared to have made this adjustment more than US farmers who, in turn, appeared to have made this adjustment more than European farmers. For operators of farms classified to each size class of standard gross margin,[16] operators of Canadian farms were more likely to work off the farm than operators of US farms.[17] In turn, for farms of each size, operators of US farms were more likely to work off the farm than operators of EU farms (Fuller and Bollman, 1992). Operators with larger farms were less likely to work off the farm (or, individuals with off-farm jobs were more likely to operate smaller farms).

The same general conclusion held for the spouses of farm operators. The spouses of Canadian census-farm operators were more likely to work off the farm than the spouses of US farm operators who, in turn, were more likely to work off the farm than the spouses of European farm operators. However, in Canada, the USA and Europe, the participation in off-farm work by the spouse of the farm operator appeared to be independent of the size of the farm.

If the focus is shifted from agriculture and agricultural policy to the socio-economic well-being of families associated with farming, then farming families do have an interest in rural development and rural development policies and the generation of rural jobs. Recall however that the demographic count of farming families in predominantly rural regions is small.

7 If rural has little interest in agriculture, where does its interest lie?

As suggested above, if rural development is the growth of jobs at a distance from a service centre or at a distance from a market centre, then rural development would appear to have little interest in agriculture because agriculture is not creating jobs.[18] Thus, where might the interest of rural lie?

The price of transporting goods is falling in real terms (i.e. relative to the general price level as measured by the Consumer Price Index or the GDP implicit price deflator) (Bollman and Prud'homme, 2006; Glaeser and Kohlase, 2004). As a result, rural areas are becoming more competitive in manufacturing (Beshiri, 2001). In Canada, manufacturing

15. Bollman (1991) showed that operators who receive one-half of their labour earnings from farming and one-half of their labour earnings from off-farm work have lower total labour earnings than operators with a small amount of farm earnings or operators with a small amount of off-farm earnings. In this sense, a ½ : ½ mix of farm and off-farm work appears to be a less efficient allocation of the time of the operator (in the sense that overall labour returns are smaller).
16. Standard gross margin is calculated as gross farm revenue minus selected expenses.
17. Agriculture and Agri-Food Canada (2005, p. 75) show that, in Canada, less than 50 percent of operators of one-operator census-farms were engaged in some off-farm work and USA principal operators of all census-farms were more likely (more than 50 percent) to report some off-farm work. We suspect that the higher share of USA census-farm operators reporting some off-farm work is due, at least in part, to the fact that operators associated with smaller census-farms are more likely to report off-farm work and a higher share of USA census-farms are "small". About one-half of USA census-farms have gross revenue less than USA $10,000 whereas only about one-quarter of Canadian census-farms have gross revenue less than USA $10,000 (Whitener *et al.*, 1995).
18. It is acknowledged that growth in agricultural commodity output may be creating jobs in other sectors (e.g., trucking and food processing).

is moving to the rural metro-adjacent regions (Baldwin *et al.*, 2001). Thus, manufacturing remains the exportable sector in predominantly rural regions with the best potential to be the future pillar of rural development (Freshwater, 2003). Note that in the 1990s across all predominantly rural regions (in 20 OECD countries for which employment data were available by sector by region), employment in "industry"[19] grew by 0.5 percent per year whereas "industry" employment declined in the 1990s in intermediate regions and in predominantly urban regions (Table 3). Not all countries reported growth in "industry" employment in their predominantly rural regions in the 1990s. About one-half reported growth and about one-half reported a decline in "industry" employment in their predominantly rural regions (Figure 3).

One important component of manufacturing is adding value to food and fibre products. This invites a look at the interest of rural in sectors related to agriculture. Agriculture and Agri-Food Canada has defined the agriculture and agri-food sector to include the sectors which manufacture farm inputs, the primary agricultural sector, the food processing sector, the wholesale and retail trade of agricultural and food products (including grocery stores) and the food and beverages services sector (i.e. restaurants and drinking places) (Keith, 2003). Thus, the discussion of the overlap of rural and agriculture can be extended into a discussion of the overlap of rural and agriculture plus agri-food.

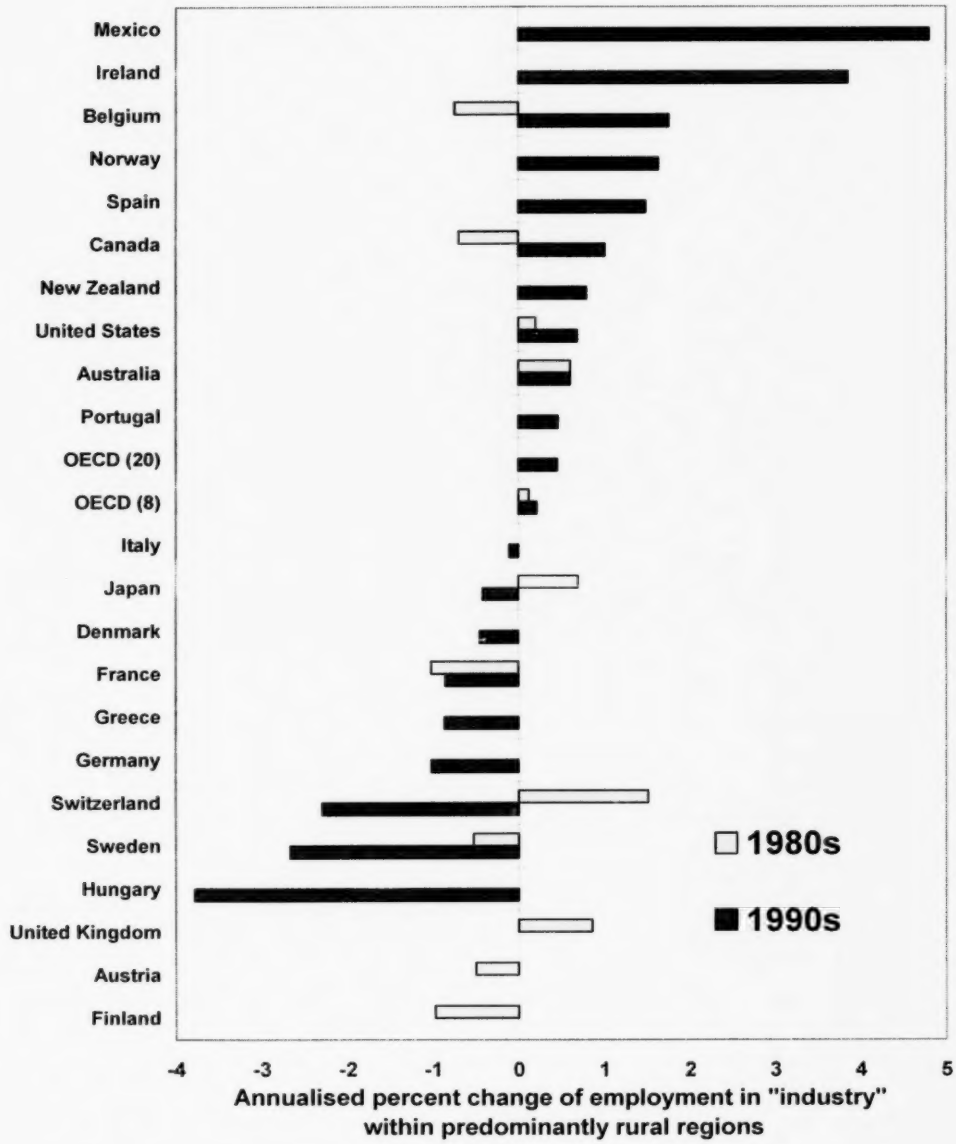
In Canada, between 1981 and 2001, employment in the food processing sector in predominantly rural regions increased (marginally, by 6 thousand jobs, or 0.4 percent per year, on average) (Table 4). Thus, the manufacturing component of the agriculture plus agri-food sector did make a positive contribution to rural development (i.e. rural job growth) in Canada in the last two decades of the 1900s.

In addition, employment in the wholesale and retail trade of agricultural and food products grew in both urban and rural regions, at about the same rate – 1.6 percent per year from 1981 to 2001. Similarly, employment in the food and beverage services sector grew in both urban and rural regions, at about the same rate – 3.4 and 3.8 percent per year, respectively. Part of the growth in food and beverages may be due to tourism. Beshiri (2005, Figure 2) indicates that tourism employment growth was slightly higher in predominantly rural regions than in predominantly urban and intermediate regions from 1996 to 2003.

Thus, the creation of rural jobs in the food processing sector and the creation of rural jobs in the food and beverage services sector due to growth in rural tourism represent two components of the agriculture and agri-food sector in Canada that are contributing to rural development (i.e. the creation of rural jobs).

19. Manufacturing is the major component of "industry" but it is possible that manufacturing is not causing the growth of "industry" employment.

Figure 3 In the 1990s, employment in "industry"[1] grew in the average OECD predominantly rural region



Notes: OECD (20) refers to the 20 countries for which employment data were available by sector and by region in 1990 and in 2000.
OECD 8 refers to the 8 countries for which employment data were available by sector and by region in 1980, 1990 and 2000. Data for the 1990s was not available for The United Kingdom, Austria and Finland.

1: "Industry" comprises ISIC 2 (mining, oil extraction and quarrying); ISIC 3 (manufacturing); ISIC 4 (utilities); ISIC 5 (construction).

Source: OECD Territorial Database.

Table 4 Distribution of employment by sector and by type of region, Canada, 1981 to 2001

Year	Agriculture	Agri-food sectors				Agriculture and agri-food (sub-total)	Total
		Food processing	Wholesale and retail trade of agricultural and food products	Food and beverage services	All agri-food sectors[1] (sub-total)		
	Number employed (,000)						
	Predominantly urban or intermediate regions						
1981	143	193	322	332	877	1,021	8,274
2001	146	166	439	643	1,260	1,405	11,060
	Predominantly rural regions						
1981	344	67	154	122	361	705	3,603
2001	311	73	211	256	548	859	4,517
	All types of regions						
1981	487	260	476	455	1,238	1,725	11,877
2001	456	240	650	899	1,808	2,264	15,576
	Percent distribution of employment across sectors within each type of region (row percent)						
	Predominantly urban or intermediate regions						
1981	2	2	4	4	11	12	100
2001	1	2	4	6	11	13	100
	Predominantly rural regions						
1981	10	2	4	3	10	20	100
2001	7	2	5	6	12	19	100
	All types of regions						
1981	4	2	4	4	10	15	100
2001	3	2	4	6	12	15	100
	Percent distribution of employment across types of regions for each sector (column percent)						
	Predominantly urban or intermediate regions						
1981	29	74	68	73	71	59	70
2001	32	69	68	72	70	62	71
	Predominantly rural regions						
1981	71	26	32	27	29	41	30
2001	68	31	32	28	30	38	29
	All types of regions						
1981	100	100	100	100	100	100	100
2001	100	100	100	100	100	100	100
	Annualised rate of growth of employment (percent)						
	Predominantly urban or intermediate regions						
1981 to 2001	0.1	-0.7	1.6	3.4	1.8	1.6	1.5
	Predominantly rural regions						
1981 to 2001	-0.5	0.4	1.6	3.8	2.1	1.0	1.1
	All types of regions						
1981 to 2001	-0.3	-0.4	1.6	3.5	1.9	1.4	1.4

Notes: In this table, employment is allocated to sectors using the 1980 Standard Industrial Classification (SIC). "Agriculture" includes (self-employed and paid) employment on farms plus employment in services related to agriculture and thus differs somewhat from the "Agriculture ISIC = 1" used elsewhere in this paper.

1: The "All agri-food sectors" includes smaller sectors not shown (i.e. employment in the farm input sectors).

Source: Statistics Canada, Census of Population, 1981 to 2001.

8 Conclusion

The "people-scape" of predominantly rural regions in OECD countries is not agricultural – even though the landscape may be agricultural. A large majority of the rural workforce is employed in sectors other than agriculture. In 2000, no OECD country had over one-third of its predominantly rural population employed in agriculture. On average, less than 10 percent of the OECD predominantly rural workforce is employed in agriculture. Thus, agricultural policy is directly received by a minority of the rural workforce.

In addition, agriculture is not solely a rural enterprise. In fact, about one-half of OECD agricultural workers are employed in intermediate and predominantly urban regions. Thus, agriculture extends beyond rural. Agricultural policy is not solely focused on predominantly rural regions.

References

Agriculture and Agri-Food Canada. (2005) **Farm Income Issues Data Source Book** (Ottawa: Agriculture and Agri-Food Canada).

Baldwin, John R., W. Mark Brown and Tara Vinodrai. (2001) **Dynamics of the Canadian Manufacturing Sector in Metropolitan and Rural Areas** (Ottawa: Statistics Canada Analytic Studies Branch Research Paper No. 169, Catalogue no. 11F0019MIE00169). (http://www.statcan.ca/bsolc/english/bsolc?catno=11F0019M&CHROPG=1)

Beshiri, Roland. (2001) "Employment Structure in Rural and Small Town Canada: The Manufacturing Sector." **Rural and Small Town Canada Analysis Bulletin** Vol. 2, No. 8 (Ottawa: Statistics Canada, Cat. no. 21-006-XIE). (http://www.statcan.ca/bsolc/english/bsolc?catno=21-006-X&CHROPG=1)

Beshiri, Roland. (2005) "Tourism employment in rural Canada." **Rural and Small Town Canada Analysis Bulletin** Vol. 5, No. 8 (Ottawa: Statistics Canada, Catalogue no. 21-006-XIE). (http://www.statcan.ca/bsolc/english/bsolc?catno=21-006-X&CHROPG=1)

Bollman, Ray D. (1989), "Who Receives Farm Government Payments?" **Canadian Journal of Agricultural Economics**, Vol. 37, No. 3 (November), pp. 351-378.

Bollman, Ray D. (1991) "Efficiency Aspects of Part-time Farming." In M. C. Hallberg, Jill L. Findeis and Daniel A. Lass, **Multiple Jobholding among Farm Families** (Ames: Iowa State University Press), pp. 112-139.

Bollman, Ray D. (1998) "Agricultural Statistics for Rural Development." In Holland, Theresa E. and Van den Broecke, Marcel P.R. (ed.) **Agricultural Statistics 2000: An International Conference on Agricultural Statistics** (Voorburg, The Netherlands: International Statistical Institute), pp. 29-41.

Bollman, Ray D. (1999) "Factors Associated with Local Economic Growth." **Rural and Small Town Canada Analysis Bulletin** Vol. 1, No. 6 (Ottawa: Statistics Canada, Catalogue no. 21-006-XIE). (http://www.statcan.ca/bsolc/english/bsolc?catno=21-006-X&CHROPG=1)

Bollman, Ray D. and Marc Prud'homme. (2006) "Trends in the prices of rurality." **Rural and Small Town Canada Analysis Bulletin** (Ottawa: Statistics Canada, Catalogue no. 21-006-XIE). (http://www.statcan.ca/bsolc/english/bsolc?catno=21-006-X&CHROPG=1)

Diakosavvas, Dimitris. (2005) "Evolution of Agricultural Policies in OECD Countries and Implications for Rural Development," Paper presented to the OECD Workshop on

"The Coherence of Agricultural and Rural Development Policies," Bratislava, October 24-26, 2005.

Douglas, David J.A. (1999) "The New Rural Region: Consciousness, Collaboration and New Challenges and Opportunities for Innovative Practice." Chapter 2 in William Ramp, Judith Kulig, Ivan Townshend and Virginia McGovern (ed.) **Health in Rural Settings: Contexts for Action** (Lethbridge: University of Lethbridge, 1999), pp. 39-60.

du Plessis, Valerie, Roland Beshiri, Ray D. Bollman and Heather Clemenson (2001) "Definitions of Rural." **Rural and Small Town Canada Analysis Bulletin** Vol. 3, No. 3 (Ottawa: Statistics Canada, Catalogue no. 21-006-XIE). (http://www.statcan.ca/bsolc/english/bsolc?catno=21-006-X&CHROPG=1)

Freshwater, David. (2003) "Will manufacturing remain the pillar of rural development?" In **The Future of Rural Policy: From Sectoral to Place-based Policies in Rural Areas.** (Paris: OECD), pp. 99-124.

Fuller, Anthony and Ray Bollman. (1992) "Pluriactivity Among Farm Families: Some West European, US and Canadian Comparisons". In I.R. Bowler, C.F. Bryant and M.D. Nellis (ed.), **Contemporary Rural Systems in Transition: Volume 2, Economy and Society** (Wallingford, U.K.: CAB International), pp. 201–212.

Glaeser, Edward L. and Janet E. Kohlase. (2004) "Cities, regions and the decline of transport costs." **Papers in Regional Science: Journal of the Regional Science Association International,** Vol. 83. No. 1, pp. 197-228.

Keith, Barbara. (2003) "More than just farming: employment in agriculture and agri-food in rural and urban Canada." **Rural and Small Town Canada Analysis Bulletin** Vol. 4, No. 8 (Ottawa: Statistics Canada, Catalogue no. 21-006-XIE) (http://www.statcan.ca/bsolc/english/bsolc?catno=21-006-X&CHROPG=1)

Kislev, Yoav, and Willis Peterson. (1982) "Prices, Technology and Farm Size." **Journal of Political Economy**, Vol. 90, No. 3 (June), pp. 578 – 595.

Lonmo, Charlene. (1999) "Cattle, crops and city living." **Canadian Agriculture at a Glance** (Ottawa: Statistics Canada, Catalogue No. 96-325), pp. 245 – 250.

OECD. (1994) **Creating Rural Indicators for Shaping Territorial Policy** (Paris: Organisation for Economic Co-operation and Development).

OECD. (2001) **OECD Territorial Outlook** 2001 (Paris: Organisation for Economic Cooperation and Development, 2001).

Statistics Canada. (2006) **Farm Financial Survey – 2005** (Ottawa: Statistics Canada, Catalogue no. 21F0008) (www.statcan.ca/cgi-bin/downpub/listpub.cgi?catno=21F0008XIB2005001)

Whitener, Leslie, Ray D. Bollman and Fu Lai Tung (1995), "Trends and Patterns in Farm Structural Change: A Canada – U.S. Comparison", **Canadian Journal of Agricultural Economics** (Special Issue on **Farms, Farm Families and Farming Communities**), pp. 15-28.

Agriculture and Rural Working Paper Series

(* The *Agriculture and Rural Working Paper Series* is now available on Statistics Canada's Web Site (www.statcan.ca). From the Statistics Canada *Home* page, select *Publications* and then choose *Free internet publications*.

No.1	(21-601-MPE1980001)	**A Description of Theil's RMPSE Method in Agricultural Statistical Forecasts (1980)**, Stuart Pursey
No.3	(21-601-MPE1981003)	**A Review of the Livestock Estimating Project with Recommendations for the Future (1981)**, Bernard Rosien and Elizabeth Leckie
No.4	(21-601-MPE1984004)	**An Overview of the Canadian Oilseed Industry (1984)**, Glenn Lennox
No.5	(21-601-MPE1984005)	**Preliminary Analysis of the Contribution of Direct Government Payments to Realized Net Farm Income (1984)**, Lambert Gauthier
No.6	(21-601-MPE1984006)	**Characteristics of Farm Entrants and their Enterprises in Southern Ontario for the Years 1966 to 1976 (1984)**, Jean B. Down
No.7	(21-601-MPE1984007)	**A Summary of Commodity Programs in the United States (1984)**, Allister Hickson
No.8	(21-601-MPE1984008)	**Prairie Summerfallow Intensity: An Analysis of 1981 Census Data (1984)**, Les Macartney
No.9	(21-601-MPE1985009)	**The Changing Profile of the Canadian Pig Sector (1985)**, Mike Shumsky
No.10	(21-601-MPE1986010)	**Revisions to the Treatment of Imputed House Rents in the Canadian Farm Accounts, 1926-1979 (1986)**, Mike Trant
No.11	(21-601-MPE1992011)	**The Ratio Estimator: an Intuitive Explanation and Its Use in Estimating Agriculture Variables (1992)**, François maranda and Stuart Pursey
No.12	(21-601-MPE1991012)	**The Impact of Geographic Distortion Due to the Headquarters Rule (1991)**, Rick Burroughs
No.13	(21-601-MPE1991013)	**The Quality of Agriculture Data - Strengths and Weaknesses (1991)**, Stuart Pursey
No.14	(21-601-MPE1992014)	**Alternative Frameworks for Rural Data (1992)**, A.M. Fuller, Derek Cook and Dr. John Fitzsimons
No.15	(21-601-MPE1993015)	**Trends and Characteristics of Rural and Small Town Canada (1993)**, Brian Bigs, Ray Bollman and Michael McNames
No.16	(21-601-MPE1992016)	**The Microdynamics and Farm Family Economics of Structural Change in Agriculture (1992)**, Phil Ehrensaft and Ray Bollman
No.17	(21-601-MPE1993017)	**Grains and Oilseeds Consumption by Livestock and Poultry, Canada and Provinces 1992**, Livestock and Animal Products Section
No.18	(21-601-MPE1994018)	**Trends and Patterns of Agricultural Structural Change: Canada / US Comparison**, Ray Bollman, Leslie A. Whitener and Fu Lai Tung
No.19	(21-601-MPE1994019)	**Farm Family Total Income by Farm Type, Region and Size for 1990 (1994)**, Saiyed Rizvi, David Culver, Lina Di Piétro and Kim O'Connor
No.20	(21-601-MPE1991020)	**Adjustment in Canadian Agriculture (1994)**, George McLaughlin
No.21	(21-601-MPE1993021)	**Microdynamics of Farm Size Growth and Decline: A Canada-United States Comparison**, Fred Gale and Stuart Pursey
No.22	(21-601-MPE1992022)	**The Structures of Agricultural Household Earnings in North America: Positioning for Trade Liberalization**, Leonard Apedaile, Charles Barnard, Ray Bollman and Blaine Calkins
No.23	(21-601-MPE1992023)	**Potatoes: A Comparison of Canada/USA Structure**, Glenn Zepp, Charles Plummer and Barbara McLaughlin
No.24	(21-601-MPE1994024)	**Farm Structure Data: A US-Canadian Comparative Review**, Victor J. Oliveira, Leslie A. Whitener and Ray Bollman
No.25	(21-601-MPE1994025)	**Grain Marketing Statistics Statistical Methods Working Paper Version 2**, Karen Gray

Agriculture and Rural Working Paper Series (continued)

(* The *Agriculture and Rural Working Paper Series* is now available on Statistics Canada's Web Site (www.statcan.ca). From the Statistics Canada *Home* page, select *Publications* and then choose *Free internet publications*.

No.26	(21-601-MPE1994026)	**Farm Business Performance: Estimates from the Whole Farm Database**, W. Steven Danford
No.27	(21-601-MPE1994027)	**An Attempt to Measure Rural Tourism Employment**, Brian Biggs
No.28*	(21-601-MIE1995028)	**Delineation of the Canadian Agricultural Ecumene for 1991**, Timothy J. Werschler
No.29	(21-601-MPE1995029)	**Mapping the Diversity of Rural Economies: A preliminary Typology of Rural Canada**, Liz Hawkins
No.30*	(21-601-MIE1996030)	**Structure and Trends of Rural Employment: Canada in the Context of OECD Countries**, Ron Cunningham and Ray D. Bollman
No.31*	(21-601-MIE1996031)	**A New Approach to Non-CMA/CA Areas**, Linda Howatson-Leo and Louise Earl
No.32	(21-601-MPE1996032)	**Employment in Agriculture and Closely Related Industries in Rural Areas: Structure and Change 1981-1991**, Sylvain Cloutier
No.33*	(21-601-MIE1998033)	**Hobby Farming - For Pleasure or Profit?**, Stephen Boyd
No.34*	(21-601-MIE1998034)	**Utilization of Document Imaging Technology by the 1996 Canadian Census of Agriculture**, Mel Jones and Ivan Green
No.35*	(21-601-MIE1998035)	**Employment Patterns in the Non-Metro Workforce**, Robert Mendelson
No.36*	(21-601-MIE1998036)	**Rural and Small Town Population is Growing in the 1990s**, Robert Mendelson and Ray D. Bollman
No.37*	(21-601-MIE1998037)	**The Composition of Business Establishments in Smaller and Larger Communities in Canada**, Robert Mendelson
No.38*	(21-601-MIE1998038)	**Off-farm Work by Census-farm Operators: An Overview of Structure and Mobility Patterns**, Michael Swidinsky, Wayne Howard and Alfons Weersink
No.39*	(21-601-MIE1999039)	**Human Capital and Rural Development: What Are the Linkages?**, Ray D. Bollman
No.40*	(21-601-MIE1999040)	**Computer Use and Internet Use by Members of Rural Households**, Margaret Thompson-James
No.41*	(21-601-MIE1999041)	**RRSP Contributions by Canadian Farm Producers in 1994**, Marco Morin
No.42*	(21-601-MIE1999042)	**Integration of Administrative Data with Survey and Census Data**, Michael Trant and Patricia Whitridge
No.43*	(21-601-MIE2001043)	**The Dynamics of Income and Employment in Rural Canada: The Risk of Poverty and Exclusion**, Esperanza Vera-Toscano, Euan Phimister and Alfons Weersink
No.44*	(21-601-MIE2001044)	**Rural Youth Migration Between 1971 and 1996**, Juno Tremblay
No.45*	(21-601-MIE2001045)	**Measuring Economic Well-Being of Rural Canadians Using Income Indicators**, Carlo Rupnik, Margaret Thompson-James and Ray D. Bollman
No.46*	(21-601-MIE2001046)	**The Geographical Patterns of Socio-Economic Well-Being of First Nations Communities in Canada**, Robin P. Armstrong
No.47*	(21-601-MIE2001047)	**Distribution and Concentration of Canadian Livestock**, Martin S. Beaulieu
No.48*	(21-601-MIE2001048)	**Intensive Livestock Farming: Does Farm Size Matter?**, Martin S. Beaulieu
No.49*	(21-601-MIE2001049)	**Agriculture Statistics for Rural Development**, Ray D. Bollman
No.50*	(21-601-MIE2001050)	**Rural and Small Town Employment: Structure by Industry**, Roland Beshiri and Ray D. Bollman

Agriculture and Rural Working Paper Series (continued)

(* The *Agriculture and Rural Working Paper Series* is now available on Statistics Canada's Web Site (www.statcan.ca). From the Statistics Canada *Home* page, select *Publications* and then choose *Free internet publications*.

No.51* (21-601-MIE2001051) **Working Time: How do Farmers Juggle with it and How has it Impacted Their Family Total Income**, Sylvain Cloutier

No.52* (21-601-MIE2001052) **Growers of Genetically Modified Grain Corn and Soybeans in Quebec and Ontario: A Profile**, Bernard Hategekimana

No.53* (21-601-MIE2002053) **Integration of Canadian and U.S. Cattle Markets**, Rita Athwal

No.54* (21-601-MIE2002054) **Genetically Modified Grain Corn and Soybeans in Quebec and Ontario in 2000 and 2001,** Bernard Hategekimana

No.55* (21-601-MIE2002055) **Recent Migration Patterns in Rural and Small Town Canada,** Neil Rothwell et al

No.56* (21-601-MIE2002056) **Performance in the Food Retailing Segment of the Agri-Food Chain**, David Smith and Michael Trant

No.57* (21-601-MIE2002057) **Financial Characteristics of Acquired Firms in the Canadian Food Industry**, Martin S. Beaulieu

No.58* (21-601-MIE2002058) **Provincial Trade Patterns**, Marjorie Page

No.59* (21-601-MIE2002059) **An Analysis of Profits within the Canadian Food Processing Sector**, Rick Burroughs and Deborah Harper

No.60* (21-601-MIE2002060) **Rural Diversification**, Marjorie L. Page

No.61* (21-601-MIE2002061) **Definitions of "Rural"**, Valerie du Plessie et al

No.62* (21-601-MIE2003062) **A Geographic Profile of Canadian Livestock**. Martin S. Beaulieu et Frédéric Bédard

No.63* (21-601-MIE2003063) **Sub-provincial Income Disparity in Canada: Evidence from 1992 to 1999**, Alessandro Alasia

No.64* (21-601-MIE2003064) **Canada – Mexico Agricultural Economies and Trade Under Closer North American Relations**, Verna Mitura et al

No.65* (21-601-MIE2003065) **Computer Technology Adoption by Canadian Farm Businesses: An Analysis Based on the 2001 Census of Agriculture**, Jean Bosco Sabuhoro and Patti Wunsch

No.66* (21-601-MIE2004066) **Factors Associated with Household Internet Use in Canada**, Vik Singh

No.67* (21-601-MIE2004067) **Mapping the Socio-Economic Diversity of Rural Canada: A Multivariate Analysis**, Alessandro Alasia

No.68* (21-601-MIE2004068) **The Effect of FDI on Agriculture and Food Trade: An Empirical Analysis**, W.H. Furtan and J.J. Holzman

No.69* (21-601-MIE2004069) **Canada's Beef Cattle Sector and the Impact of BSE on Farm Family Income**, Verna Mitura and Lina Di Piétro

No.70* (21-601-MIE2004070) **Measuring Industry Concentration in Canada's Food Processing Sectors**, Darryl Harrison and James Rude

No.71* (21-601-MIE2004071) **Trends in Non-farm Self-employment Activity for Rural Women**, Valerie du Plessis

No.72* (21-601-MIE2004072) **The Redesign of the Canadian Farm Product Price Index**, Andy Baldwin

No.73* (21-601-MIE2005073) **Effect of Urbanization on the Adoption of Environmental Management Systems in Canadian Agriculture**, Udith Jayasinghe-Mudalige, Alfons Weersink, Brady Deaton, Martin Beaulieu and Mike Trant

No.74* (21-601-MIE2005074) **Factors Leading to the Implementation of Beneficial Management Practices for Manure Management on Canadian Hog Operations**, Diep Le and Martin S. Beaulieu

Agriculture and Rural Working Paper Series (concluded)

(* The *Agriculture and Rural Working Paper Series* is now available on Statistics Canada's Web Site (www.statcan.ca). From the Statistics Canada *Home* page, select *Publications* and then choose *Free internet publications*.

No.75*	(21-601-MIE2005075)	**The Competitiveness of Canada's Poultry Processing Industry**, Hao Liu et al
No.76*	(21-601-MIE2005076)	**Skills, Innovation and Growth: Key Issues for Rural and Territorial Development – A Survey of the Literature**, Alessandro Alasia
No.77*	(21-601-MIE2006077)	**A Geographical Profile of Manure Production in Canada, 2001,** Nancy Hofmann and Martin S. Beaulieu
No.78*	(21-601-MIE2006078)	**Factors Affecting Biotechnology Innovation in Canada: Analysis of the 2001 Biotechnology Use and Development Survey,** Daryl van Moorsel, J.A.L. Cranfield and David Sparling
No.79*	(21-601-MIE2006079)	**An Analysis of Financing Innovation and Commercialization in Canada's Functional Food and Nutraceutical Sector,** John Cranfield, Deepananda Herath, Spencer Henson and Dave Sparling
No.80*	(21-601-MIE2006070)	**Impact of Characteristics of the Farmers and their Business on Profitability in the Canadian Hog Industry**, Véronique Maltais